

Dr. Bulstrode gives us many tables of statistics which prove the gradual but steady diminution of tuberculosis, and emphasise the curious phenomenon that this declension is much more marked among females.

In this satisfactory state of affairs sanitary reform, improved conditions of living, and higher wages have all played their part, but the report does not help us much to estimate the relative value of the various methods of attacking the disease which have been tried.

The difficulty of estimating the value of sanatorium treatment is brought out, and we are told that until this method has had a longer trial figures of results will only lead to confusion and misconception.

Stress is, however, laid on the fact that to obtain the best results from sanatorium treatment cases of tuberculosis must be treated in their earliest stages, and further, that after treatment an easy path of suitable work must be provided until a life of full activity can be tolerated by the patient.

The problems which arise in the selection of a sanatorium site, and the conditions necessary in sanatorium buildings, are thoroughly discussed. Dr. Bulstrode concludes that, with foresight and care, the erection of sanatoria with all actual essentials might be provided at a smaller cost than has hitherto been the case. This is an important conclusion, for if we are to provide adequately for the tuberculous population, many more sanatoria must be erected, and the question of money has ever been the chief difficulty in the way.

One of the most interesting chapters, which is amplified in part iv., relates to the German system of compulsory insurance as a factor in the control of phthisis. The figures given are striking, and we see here admirably exemplified the value of coordinated effort as opposed to the haphazard methods of control employed in the British Isles.

The conclusion is thrust upon us that in the control of phthisis Germany is far ahead of us. We are set an excellent example, which we would do well to follow. Our comparative failure is largely due to this want of coordination, and the waste of money and energy thereby entailed.

This part of the report concludes with a chapter on the teaching of hygiene in the public elementary schools. Tuberculosis is associated with ignorance no less than with poverty, so that there can be no question as to the importance of teaching elementary hygiene, especially so far as food values are concerned, as a means to the reduction of tuberculosis both in childhood and adult life.

In part ii. we are given a well-illustrated directory of all the public sanatoria in England and Wales, which should prove of much value for reference. This part of the report has been provided with an index, which might mercifully have been extended to the whole volume.

Part iii. is devoted to a discussion of notification of tuberculosis (voluntary and compulsory). There are as yet no data available by which the substantial utility of notification can be tested, and we must await a more extended experience before a decided opinion can be formed.

The whole volume is an admirable and comprehensive piece of work, which should be read by all those interested directly or indirectly in the problems of tuberculosis.

R. FIELDING-OULD.

#### THE SOCIETY OF DYERS AND COLOURISTS.

THE twenty-fourth annual general meeting of the Society of Dyers and Colourists was held at Bradford on Friday, April 3, in the large hall of the Technical College. The president, Prof. Meldola, having taken the chair, the Lord Mayor of Bradford, on behalf of the town, welcomed the meeting, and especially the distinguished foreign visitors, Prof. Liebermann and Dr. Schreiner, who were present. The president then, on behalf of the society, awarded the Perkin medal, which for this occasion had been duplicated, to Profs. Graebe and Liebermann for their synthesis of alizarin in 1868. The medal was founded by the society in 1906 in honour of the late Sir William Perkin, and in celebration of the jubilee of the discovery of mauve, the

first of the coal-tar colouring matters, the terms of its award being "for investigations, discoveries or inventions of high scientific or industrial importance applicable to or connected with the tinctorial industries."

In presenting the medals, which Prof. Liebermann received on behalf of himself and colleague, the president pointed out that this first presentation was in recognition of a discovery which, although made forty years ago, was still practically effective in enabling the tinctorial industry to be supplied with some of the most important of the artificial colouring matters. The synthesis of alizarin was of extreme scientific interest as having been the first case of the artificial production of a natural colouring matter, and it was also of particular importance as having exerted a marked influence on Perkin's career as a manufacturer and scientific investigator. Prof. Liebermann, on behalf of Prof. Graebe and himself, acknowledged the honour which had been conferred upon them, and in eloquent terms paid tribute to the memory of the late Sir William Perkin.

The president then delivered an address on the founding of the coal-tar colour industry, in which he reviewed Perkin's life-work from the technical side, and gave a history of the foundation and development of the Greenford Green factory, where all Perkin's industrial operations were conducted. On the motion of Mr. Hindley, seconded by Dr. Hertz and supported by Sir Robert Pullar, the president was thanked for his address, which was ordered to be published in the journal of the society.

In the evening the members and their guests dined at the Great Northern Victoria Hotel, the president occupying the chair, and being supported by Prof. Liebermann, the Lord Mayor, the ex-Lord Mayor, Sir Robert Pullar, Dr. C. Dreyfus, and representatives of most of the great dyeing and printing firms of the district, as well as by well-known authorities connected with the educational and scientific side of the tinctorial industry, such as Profs. A. G. Green (Leeds), W. M. Gardner (Bradford), Dr. J. C. Cain (London), Dr. Knecht (Manchester), and Mr. C. Rawson (Leicester), &c. All the officers of the society, which has its headquarters in Bradford, with sections in Manchester, the West Riding, and London, were also present. The toast of the society was proposed by the Lord Mayor, and responded to by Sir Robert Pullar. The president gave the toast of the medallists, which was enthusiastically received in both German and English forms, and to which Prof. Liebermann responded. The toast of the president was proposed by Mr. Ald. Godwin, the ex-Lord Mayor, in a humorous speech, and replied to from the chair. Dr. Schreiner, the inventor of the well-known process for "Schreinerising" fabrics, also addressed the meeting in acknowledgment of the honour done to his distinguished countrymen and to himself as a guest. As Prof. Graebe was unable through indisposition to be present at the gathering, a telegram was dispatched in the name of the society expressing regret at his absence and wishes for his speedy recovery.

#### ENCKE'S COMET.

THE observations of Encke's comet made at the Heidelberg Observatory deviate so strongly from the predicted places that Dr. Backlund, the director of the Pulkowa Observatory, has thought it necessary to investigate the cause. He finds that the perturbations by Jupiter, which were calculated in duplicate by H. Kamensky and Fraulein Karolikowa, have been correctly applied, so far as they depend on the first power of the disturbing force, but that in the period 1901-4 the comet approached Jupiter almost as closely as is possible, and that in consequence perturbations of the second order are very sensible. The corrections to the several elements, depending on the action of Jupiter, were as follows:—

	1st Order	2nd Order
Mean anomaly ...	+11 55'2	-3 34'1
Long. perihelion ...	-0 8'5	-0 15'7
Long. node ...	+0 4'8	-1 0'2
Inclination ...	+1 2'0	—
Excentricity ...	+2 39'8	-1 7'6
Mean motion ...	+0°9255	-0°3210

The corrections to the ephemeris, after applying the improved value of the perturbations, and taking into

account the influence of the acceleration, are, for the three days :—

	1908, Jan. 3	Jan. 11	Jan. 19
$\Delta\alpha$ ...	+0 49'25	+0 40'31	+0 27'50
$\Delta\delta$ ...	-2 24'75	-2 21'69	-2 21'65

whereas the corrections to the published ephemeris, found by Dr. Kobold from Dr. Max Wolf's observations, are of quite a different character :—

	$\Delta\alpha$	$\Delta\delta$
1907 Dec. 25 ...	+34'5	-24
1908 Jan. 2 ...	+35'2	-24
" " 13 ...	+47'0	-4'9
" " 14 ...	+47'2	-3'6
" " 15 ...	+47'0	-2'4
" " 18 ...	+45'3	+0'5
" " 19 ...	+44'3	+1'4

It will be seen that the neglected perturbations in no way explain the deviations between the computed and observed places. In declination these differences are particularly striking, and no permissible alterations to the elements will reduce them to the order of errors of observation.

Prof. Backlund makes two suggestions by way of explanation :—(1) that the object observed from December 25 to January 19 was not Encke's comet; (2) that this comet has divided itself into two parts, and that the part that has been observed has, by the process of dislocation, been deflected from the original orbit. Observations in the southern hemisphere, which will be possible in June, will decide this point. Dr. Backlund further points out that, previous to this year, the comet has never been observed before perihelion passage when the date of perihelion falls between April and July.

Dr. Ebell has computed a parabolic orbit from the observations made at Heidelberg, and the result is sufficiently surprising. The dates selected were January 2, 13, and 19, and the middle place is fairly well represented, but the outstanding errors on December 25 were  $\Delta\lambda + 32'40$  and  $\Delta\beta + 12'19$ . The elements are as follows :—

T ...	1907 Dec. 6'0569 Berlin M.T.
$\omega$ ...	39 25'59
$\Omega$ ...	317 7'25
$i$ ...	10 26'99
log $q$ ...	0'5448

The node and inclination are not very different from those of Encke, but the perihelion distance is rivalled only by the comet of 1729. The material is not sufficient to derive an ellipse. It will probably be found that the Heidelberg object is not the comet of Encke.

### UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

LONDON.—The report of the committee of University College for the year 1907-8 has just been issued. During last session there were 1191 students, of whom 171 were registered as post-graduate and research students. The report deals, among other matters, with the work of the faculties for the past year, and gives a list of the researches and original papers published during that year. That list occupies thirteen octavo pages. Among the departments that seem to have been specially productive may be noted the department of applied mathematics under Prof. Karl Pearson, from which no fewer than twenty-eight papers were issued during the year. Seven of these were from the Francis Galton Laboratory of National Eugenics. The departments of chemistry under Sir William Ramsay and Prof. J. Norman Collie produced twenty-four original papers, while the subdepartment of spectroscopy issued seven. The list of post-graduate courses is valuable as an indication of the extensive provision for higher work that is now to be found in London. The report concludes with a summary of the urgent needs

of the college if it is to meet the demands made upon it; they include the following :—

	Estimated Cost	Money Available
New buildings for anatomy, physiology, and pharmacology ...	£ 50,000	£ 15,250
New buildings for the department of chemistry. (The scheme could be carried out in two sections, costing 40,000l. and 30,000l. respectively) ...	70,000	nil
Building alterations and new equipment for botany and pathological chemistry ...	5,000	nil
Re-fitting of general library and completion of science library ...	5,000	nil

DR. J. M. FORTESCUE BRICKDALE has been appointed director of the public health laboratory of University College, Bristol.

THE Fishmongers' Company has given 1000l. towards the fund for carrying out the scheme of incorporation of King's College with the University of London.

MR. CARNEGIE has given a further donation of a million pounds sterling to the Carnegie Foundation for the Advancement of Teaching. Attention was directed in our issue of March 12 (p. 452) to the admirable work done already by the foundation, which was two years ago inaugurated by Mr. Carnegie and endowed by him with two millions sterling. The fund, which now amounts to 3,000,000l., is intended primarily to serve for providing retiring allowances for professors and others in universities and colleges in the United States, Canada, and Newfoundland. Originally the benefits of the foundation were confined to privately endowed educational institutions, and Mr. Carnegie has increased the fund so that professors in State institutions may also be eligible to participate in the benefits of the scheme.

THE seventy-fourth annual report of Bootham School (York) Natural History, Literary, and Polytechnic Society, that for 1907, provides excellent evidence that in some English secondary schools at least the out-of-school hours are opportunities in which the boys may follow their natural bent and cultivate their individuality. The boys band themselves together in societies for the outdoor study of numerous branches of natural history; they record meteorological data, study the archaeology of the neighbourhood, practise photography, work in metal and wood, and besides these and other practical pursuits they take part in a flourishing literary society. Boys and masters are to be congratulated upon the report, and the boys also on the fact that they are allowed to manage the societies largely by themselves.

It is well known, says the Journal of the Royal Society of Arts, that American employers give much more attention than has been the practice in this country to affording facilities to their managers and workpeople for obtaining technical knowledge. For example, a large organisation of spinners and manufacturers at Atalanta (Georgia) has adopted the following scheme for keeping their employees up to date in commercial and technical knowledge of the textile trade. A librarian is employed to secure all the latest books dealing with spinning, weaving, and textile engineering; all periodicals from all parts of the world bearing on the subjects are purchased or otherwise secured. The librarian prepares brief descriptions of the books, to which anyone may refer to get a quick idea of the contents. In some instances the whole periodical is filed; in others special articles are cut out, and sometimes foreign articles are translated and pasted in scrap-books. Everything is carefully indexed, and the library is open to any employee.

A NATURE-STUDY course for women is to be given again this year at the Horticultural College, Swanley, Kent, during the summer holidays. The course will extend from August 1 to 12. Weather permitting, most of the instruc-